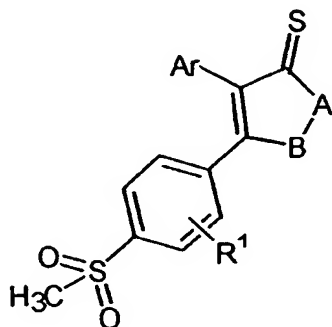


What is claimed is:

1. A thione derivative represented by formula 1:

Formula 1



5

wherein:

A and B each independently represent O, S, NR<sup>2</sup>; wherein R<sup>2</sup> represents hydrogen, C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkenyl, or aryl;

Ar represents aryl; heteroaryl; aryl or heteroaryl substituted with  
 10 one to five radicals independently selected from the group consisting of  
 C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, halogen, trifluoromethyl, nitro, acetoxy, amino,  
 C<sub>1</sub>-C<sub>3</sub> alkylamino, C<sub>1</sub>-C<sub>3</sub> dialkylamino, hydroxy, C<sub>1</sub>-C<sub>3</sub> hydroxyalkyl, and  
 thioxy; and

R<sup>1</sup> represents hydrogen, C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy, halogen, cyano,  
 15 nitro, hydroxy, amino, C<sub>1</sub>-C<sub>4</sub> alkylamino, or C<sub>1</sub>-C<sub>4</sub> dialkylamino;  
 or a non-toxic salt thereof.

2. The thione derivative according to claim 1 wherein

A and B each independently represent S or NH;

20 Ar represents phenyl; phenyl substituted with one to five radicals  
 independently selected from the group consisting of C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub>  
 alkoxy, halogen, trifluoromethyl, acetoxy, and nitro; pyridyl; or naphthyl;

R<sup>1</sup> represents hydrogen or halogen;

or a non-toxic salt thereof.

25

3. The thione derivative according to claim 1 or claim 2, which  
 is selected from the group consisting of:

4-(4-ethoxyphenyl)-5-(4-methanesulfonylphenyl)-[1,2]dithiol-3-thio

ne;  
 4-(4-bromophenyl)-5-(4-methanesulfonylphenyl)-[1,2]dithiol-3-thio  
 ne;  
 5-(4-methanesulfonylphenyl)-4-toryl-[1,2]dithiol-3-thione;  
 5 5-(4-methanesulfonylphenyl)-4-phenyl-[1,2]dithiol-3-thione;  
 5-(4-methanesulfonylphenyl)-4-methoxyphenyl-[1,2]dithiol-3-thion  
 e;  
 5-(4-methanesulfonylphenyl)-4-(2-trifluoromethylphenyl)-[1,2]dithio  
 l-3-thione;  
 10 4-(4-chlorophenyl)-5-(4-methanesulfonylphenyl)-[1,2]dithiol-3-thion  
 e;  
 4-(3,4-dichlorophenyl)-5-(4-methanesulfonylphenyl)-[1,2]dithiol-3-t  
 hione;  
 5-(4-methanesulfonylphenyl)-4-pyridine-4-yl-[1,2]dithiol-3-thione;  
 15 5-(4-methanesulfonylphenyl)-4-pyridine-3-yl-[1,2]dithiol-3-thione;  
 5-(4-methanesulfonylphenyl)-4-pyridine-2-yl-[1,2]dithiol-3-thione;  
 4-(4-fluorophenyl)-5-(4-methanesulfonylphenyl)-[1,2]dithiol-3-thion  
 e;  
 4-(2,5-dimethoxyphenyl)-5-(4-methanesulfonylphenyl)-[1,2]dithiol-  
 20 3-thione;  
 4-(3,5-dimethylphenyl)-5-(4-methanesulfonylphenyl)-[1,2]dithiol-3-t  
 hione;  
 5-(4-methanesulfonylphenyl)-4-(3-methoxyphenyl)-[1,2]dithiol-3-thi  
 one;  
 25 5-(4-methanesulfonylphenyl)-4-(2-nitrophenyl)-[1,2]dithiol-3-thione  
 ;  
 5-(4-methanesulfonylphenyl)-4-(3-trifluoromethylphenyl)-[1,2]dithio  
 l-3-thione;  
 5-(4-methanesulfonylphenyl)-4-o-toryl-[1,2]dithiol-3-thione;  
 30 4-(2-chlorophenyl)-5-(4-methanesulfonylphenyl)-[1,2]dithiol-3-thion  
 e;  
 4-(2,4-dichlorophenyl)-5-(4-methanesulfonylphenyl)-[1,2]dithiol-3-t  
 hione;  
 4-(2-chloro-4-fluorophenyl)-5-(4-methanesulfonylphenyl)-[1,2]dithi  
 35 ol-3-thione;  
 4-(3,4-dimethoxyphenyl)-5-(4-methanesulfonylphenyl)-[1,2]dithiol-  
 3-thione;

4-(2-bromophenyl)-5-(4-methanesulfonylphenyl)-[1,2]dithiol-3-thione;  
4-(2-fluorophenyl)-5-(4-methanesulfonylphenyl)-[1,2]dithiol-3-thione;  
5 4-(2,4-difluorophenyl)-5-(4-methanesulfonylphenyl)-[1,2]dithiol-3-thione;  
4-(3,4-difluorophenyl)-5-(4-methanesulfonylphenyl)-[1,2]dithiol-3-thione;  
5-(4-methanesulfonylphenyl)-4-naphthalene-2-yl-[1,2]dithiol-3-thione;  
10 5-(4-methanesulfonylphenyl)-4-pentafluorophenyl-[1,2]dithiol-3-thione;  
4-(4-isopropoxyphenyl)-5-(4-methanesulfonylphenyl)-[1,2]dithiol-3-thione;  
15 5-(4-methanesulfonylphenyl)-4-(4-propoxyphenyl)-[1,2]dithiol-3-thione;  
acetic acid 4-[5-(4-methanesulfonylphenyl)-3-thioxo-3H-[1,2]dithiol-4-yl]phenyl ester;  
5-(2-chloro-4-methanesulfonylphenyl)-4-(4-ethoxyphenyl)-[1,2]dithiol-3-thione;  
20 5-(2-chloro-4-methanesulfonylphenyl)-4-*p*-toryl-[1,2]dithiol-3-thione;  
4-(4-bromophenyl)-5-(2-chloro-4-methanesulfonylphenyl)-[1,2]dithiol-3-thione;  
25 5-(2-chloro-4-methanesulfonylphenyl)-4-(4-methoxyphenyl)-[1,2]dithiol-3-thione;  
5-(3-fluoro-4-methanesulfonylphenyl)-4-*p*-toryl-[1,2]dithiol-3-thione;  
;  
5-(3-fluoro-4-methanesulfonylphenyl)-4-(4-methoxyphenyl)-[1,2]dithiol-3-thione;  
30 acetic acid 4-[5-(3-fluoro-4-methanesulfonylphenyl)-3-thioxo-3H-[1,2]dithiol-4-yl]-phenyl ester;  
5-(4-methanesulfonylphenyl)-4-*p*-toryl-1,2-dihydropyrazole-3-thione;  
e;  
35 4-(3,4-dichlorophenyl)-5-(4-methanesulfonylphenyl)-1,2-dihydropyrazole-3-thione; and  
4-(4-chlorophenyl)-5-(4-methanesulfonylphenyl)-1,2-dihydropyrazole-3-thione;

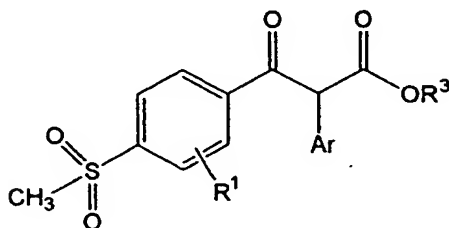
le-3-thione

or a non-toxic salt thereof.

4. A propionic acid derivative represented by formula 2:

5

Formula 2



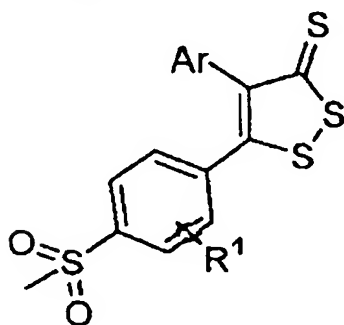
wherein, R<sup>1</sup> and Ar are as defined in claim 1 and R<sup>3</sup> represents C<sub>1</sub>-C<sub>4</sub> alkyl.

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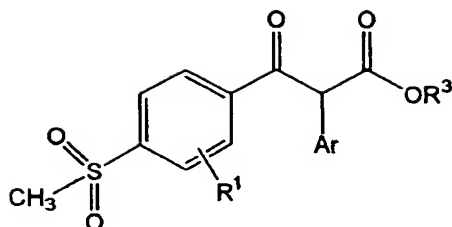
5. A method for preparing a thione derivative of formula 1a or a non-toxic salt thereof, comprising reacting a propionic acid derivative of formula 2 with phosphorus pentasulfide, Lawesson's Reagent, beta-oxothiostic acid, or potassium beta-oxothiostate:

15

Formula 1a



Formula 2



wherein:

R<sup>1</sup> and Ar are as defined in claim 1;

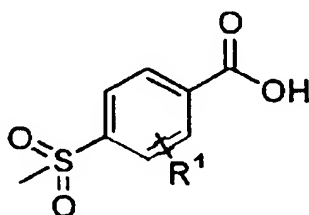
R<sup>3</sup> represents C<sub>1</sub>-C<sub>3</sub> alkyl.

5

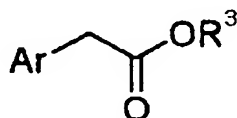
6. A method according to claim 5, wherein the propionic acid derivative of formula 2 is prepared by reacting a methanesulfonylbenzoic acid derivative of formula 3 with a aryl acetate derivative of formula 4 in the presence of a base;

10

Formula 3



Formula 4



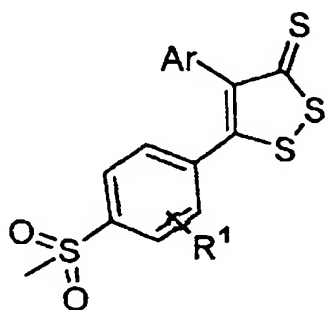
wherein:

15

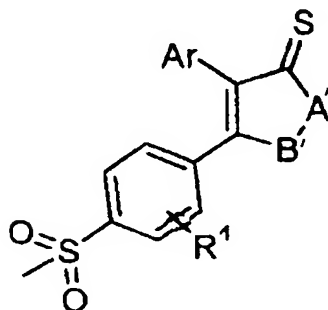
R<sup>1</sup> and Ar are as defined in claim 1 and R<sup>3</sup> represents C<sub>1</sub>-C<sub>4</sub> alkyl.

7. A method for preparing a thione derivative of formula 1b or a non-toxic salt thereof, comprising reacting a thione derivative of formula 1a with  $\text{NHR}^2\text{NH R}^2$  or  $\text{NH R}^2\text{OH}$  in the presence of a base;

5 Formula 1a



Formula 1b



wherein:

- 10 A' and B' each independently represent S or  $\text{NR}^2$ , provided that A' and B' are not simultaneously S; and  
Ar and  $\text{R}^2$  are as defined in claim 1.

8. A pharmaceutical composition comprising a therapeutically  
15 effective amount of a thione derivative or a non-toxic salt thereof according to claim 1 to claim 3 as an active ingredient and a pharmaceutically acceptable carrier for the treatment of fever, pain, and inflammation.